IN THE CLAIMS

Claim 1, 8 and 17-19 has been amended. New Claims 20-25 have been added.

1. (currently amended) A guidewire for penetrating into a vessel, comprising:

(a) an elongated wire assembly capable of being guided to a designated region of a vessel within a patient's body, the elongated wire assembly comprising

~~a core section~~an elongated member including a lumen disposed along a length of the ~~core section~~elongated member, and

an opening in the ~~core section~~elongated member, the opening positioned so that the lumen is in fluid communication with the vessel; and

(b) a sensor positioned within the lumen of the ~~core section~~elongated member so that the sensor is in fluid communication with the vessel through the opening, the sensor being capable of measuring the level of nitric oxide or superoxide molecules in the vessel of the patient's body.

2. (original) The guidewire of Claim 1, wherein the elongated wire assembly is configured to allow a catheter assembly to be slidably disposed over at least a portion thereof.

3. (previously presented) The guidewire of Claim 1, wherein the elongated wire assembly comprises a proximal section and a distal section, wherein the distal section is more flexible than the proximal section.

4. (previously presented) The guidewire of Claim 1, wherein the sensor comprises:

(a) a compound which can react with nitric oxide or superoxide such that subsequent to the reaction of the compound with nitric oxide or superoxide, the optical properties of the compound change; and

(b) an optical system capable of measuring the optical properties of the compound.

5. (previously presented) The guidewire of Claim 4, wherein the optical system includes a first fiber optic line capable of illuminating a light on the compound and a second fiber optic line to receive the light from the compound and to relay the received light to a detector.

6. (previously presented) The guidewire of Claim 1, wherein the sensor comprises:

(a) an electrically conductive substrate having an amperometric response that is substantially unaffected by the presence of nitric oxide or superoxide; and

(b) a coating capable of reacting with nitric oxide or superoxide so as to cause a change in the electrochemical potential of the nitric oxide or superoxide.

7. (original) The guidewire of Claim 1, wherein the sensor comprises a catalytic material capable of oxidizing nitric oxide or superoxide.

8. (currently amended) A ~~diagnostic~~ method for measuring the level of nitric oxide or superoxide in a vessel, comprising:

(a) positioning an elongated wire assembly into a vessel, the wire assembly including

~~a core section~~an elongated member including a lumen disposed along a length of the ~~core section~~elongated member,

an opening in the ~~core section~~elongated member, the opening positioned so that the lumen is in fluid communication with the vessel, and

a sensor positioned within the lumen of the ~~core section~~elongated member so that the sensor is in fluid communication with the vessel through the opening, the sensor being capable of measuring the level of nitric oxide or superoxide in the vessel;

(b) guiding the wire assembly to a designated region within the vessel;

(c) allowing body fluids to enter the lumen through the opening in the ~~core section~~elongated member so that the body fluids are in contact with the sensor; and

(d) measuring the level of nitric oxide or superoxide of the body fluids in contact with the sensor.

9. (original) The method of Claim 8, wherein the vessel is a blood vessel.

10. (original) The method of Claim 8, further comprising inserting a catheter over the wire assembly to treat the region of the vessel.

11. (original) The method of Claim 8, additionally including delivering a stimulant to increase the production of nitric oxide or superoxide.

12. (original) The method of claim 11, wherein the stimulant comprises acetylcholine.

13. (previously presented) The method of Claim 8, wherein the sensor comprises:

(a) a compound which can react with nitric oxide or superoxide such that subsequent to the reaction of the compound with nitric oxide or superoxide, the optical properties of the compound change; and

(b) an optical system capable of measuring the optical properties of the compound.

14. (previously presented) The method of Claim 8, wherein the sensor comprises:

(a) an electrically conductive substrate having an amperometric response that is substantially unaffected by the presence of nitric oxide or superoxide; and

(b) a coating capable of reacting with nitric oxide or superoxide so as to cause a change in the electrochemical potential of the nitric oxide or superoxide.

15. (original) The method of Claim 8, wherein the sensor comprises a catalytic material capable of oxidizing nitric oxide or superoxide.

16. (original) The method of Claim 8, wherein the designated region within the vessel is affected by restenosis.

17. (currently amended) The guidewire of Claim 1, wherein the sensor includes a sensor tip capable of bending away from a central longitudinal axis of a distal end of the ~~core section~~elongated member.

18. (currently amended) The method of Claim 8, wherein the sensor includes a sensor tip capable of bending away from a central longitudinal axis of a distal end of the ~~core section~~elongated member.

19. (currently amended) A guidewire for penetrating into a vessel, comprising:

(a) an elongated wire assembly capable of being guided to a region of a vessel within a patient's body, the elongated wire assembly comprising ~~a core section~~an elongaged member including a lumen disposed along a length of the ~~core section~~elongated member; and

(b) a sensor positioned within the lumen of the ~~core section~~elongated member so that the sensor is in fluid communication with the vessel, the sensor being capable of measuring the level of nitric oxide or superoxide molecules in the vessel of the patient's body, wherein the sensor includes a sensor tip capable of bending away from a central longitudinal axis of a distal end of the ~~core section~~elongated member.

Please add the following New Claims:

20. (new) The guidewire of Claim 1, wherein the sensor is movable within the lumen relative to the opening.

21. (new) The guidewire of Claim 20, wherein the sensor (a) is slideable along a longitudinal axis of a distal end of the elongated member; (b) includes a sensor tip capable of

bending away from a central longitudinal axis of a distal end of the elongated member; or (c) is rotatable about a central longitudinal axis of the sensor.

22. (new) The method of Claim 8, wherein the sensor is movable within the lumen relative to the opening.

23. (new) The method of Claim 22, wherein the sensor (a) is slideable along a longitudinal axis of a distal end of the elongated member; (b) includes a sensor tip capable of bending away from a central longitudinal axis of a distal end of the elongated member; or (c) is rotatable about a central longitudinal axis of the sensor.

24. (new) A guidewire for measuring chemicals in a vessel, comprising:

(a) an elongated wire assembly capable of being guided to a region of a vessel within a patient's body, the elongated wire assembly comprising an elongated member including a lumen disposed along a length of the elongated member, wherein the elongated member is configured to allow body fluids from the vessel into the lumen; and

(b) a sensor positioned within the lumen of the elongated member so that the sensor is in fluid communication with the vessel, the sensor being capable of measuring the level of nitric oxide or superoxide molecules in the body fluids.

25. (new) A method for measuring the level of nitric oxide or superoxide in a vessel, comprising:

(a) positioning an elongated wire assembly into a vessel, the wire assembly including an elongated member including a lumen disposed along a length of the elongated member, the elongated member being configured to allow body fluids from the vessel into the lumen, and

a sensor positioned within the lumen of the elongated member so that the sensor is in fluid communication with the vessel, the sensor being capable of measuring the level of nitric oxide or superoxide in the body fluids;

(b) guiding the wire assembly to a designated region within the vessel;

(c) allowing body fluids to contact the sensor; and

(d) measuring the level of nitric oxide or superoxide of the body fluids in contact with the sensor.